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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/961,256	09/25/2001	Wataru Nara	214247US2	8062

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EXAMINER	
THOMPSON, JAMES A	
ART UNIT	PAPER NUMBER
2625	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/26/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/26/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/961,256	NARA, WATARU	
	Examiner	Art Unit	
	James A. Thompson	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *27-30,34 and 35* is/are allowed.

6)☒ Claim(s) *1-26 and 31-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

DOUGLAS Q. TRAN
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02 February 2007 has been entered.

Response to Arguments

2. Applicant's arguments filed 02 February 2007 have been fully considered but they are not persuasive.

Regarding page 11, line 2 to page 13, line 3: In Tse (USPN 6,198,845 B1), the background level is first determined (column 5, lines 26-34 of Tse). Said background level is used as a threshold to determine which pixels in the image are to be converted to white background pixels (figure 10c and column 7, lines 42-65 of Tse). Thus, the background level value data is altered from the gray level of the original background level value to a value of white. In the example shown in figure 10C of Tse, the original background level value data of the 8-bit input image is 178. The output value of the 8-bit modified background level value data is 255, or pure white. This process is performed not only on the pixels considered to be background pixels, but on the whole image itself. Any pixel which has a gray value above the determined original background level value is altered to a value of pure white (255 for an 8-bit image). Thus, Tse teaches that the image processing unit applies image processing identical to said one or more types of image processing to the original background level value to produce modified background level value data, as recited in claim 1.

The background removal process performed by the background removal unit is the element which requires the threshold derived from the modified background level value data, as Applicant also states in Applicant's arguments filed 02 February 2007. While Examiner agrees that the particular embodiment of Tse cited in the previous office action mailed 02 October 2006 does not teach that said threshold is derived from the *modified* background value data, a different embodiment of Tse does teach that said threshold is derived from the modified background value data. Accordingly, the present office action differs from said previous office action in that the alternate embodiment of Tse is cited.

Regarding page 13, lines 4-22: Koga (USPN 5,388,167) is relied upon to teach removing original background data (figure 2D of Koga) that is separate from and not part of the image data (figure 2C and column 10, lines 30-46 of Koga). Koga has not been relied upon to teach applying the same image processing to both the image data and the original background level value data. Tse has been relied upon to teach applying the same image processing to both the image data and the original background level value data. The combination of Tse and Koga, as set forth in the prior art rejections below, fully teach recited claim 1.

Regarding page 13, line 23 to page 14, line 10: Since the independent claims are shown in the prior art rejections below to be rendered obvious by the combination of Tse in view of Koga, claims 31-35 cannot be considered allowable due to their respective dependencies. Furthermore, the present amendments to claims 31-35 have been fully considered and are addressed in the prior art rejections set forth below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 6-8, 11, 14, 19-21, 26 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tse (US Patent 6,198,845 B1) in view of Koga (US Patent 5,388,167).

Regarding claims 1, 14 and 26: Tse discloses a device (figure 13 of Tse) comprising a photoelectric conversion unit (figure 13(300) of Tse) which scans a document (figure 1 of Tse) and supplies image data of the scanned document (column 8, line 51 of Tse); a background detecting unit (figure 13(100(portion)) of Tse) which detects a background level value data of the image data (column 3, lines 53-56 of Tse) so as to produce original background level value indicative of the background level (column 3, lines 32-35 of Tse); an image processing unit (figure 13(100(portion)) of Tse) which applies one or more types of image processing to the image data so as to generate image processed data (figures 11a-11d and column 7, line 66 to column 8, line 5 of Tse), and applies image processing identical to said one or more types of image processing to the original background level value to produce modified background level value data (figure 10b; column 5, lines 26-34; and column 6, line 56 to column 7, line 4

of Tse); and a background removal unit (figure 13(100(portion)) of Tse) which removes background noise from the image processed data according to a generated threshold (figure 10b("196") of Tse) that is derived from the modified background level data (column 6, lines 22-30 and column 7, lines 18-30 of Tse). The image processing unit applies dynamic range modification to the image using the image background gray level (BKG) previously determined (column 6, line 56 to column 7, line 4 of Tse). The dynamic range is modified such that all pixels with gray levels greater than the background gray level are saturated white (column 7, lines 18-30 of Tse). Thus, when the background removal unit produces the output values of the input image (column 8, line 67 to column 9, line 2 of Tse), the background noise is removed. Additionally, the threshold value (figure 10b("196") of Tse) is based on the gray level determined such that, above said gray level, the pixel value is set to whitest-white. Said gray level is different from the original background level value data and is used in setting the background level for the modified image. Thus, said threshold level is based on the modified background level value data. Further, the dynamic range adjusting system (figure 13(100) of Tse) is embodied in a computer (column 9, lines 12-13 of Tse). Thus, the background detecting unit, image processing unit, and background removal unit each correspond to a particular portion of the computer, along with the associated working memory and embodied software.

Tse does not disclose expressly that said original background data is separate from and not part of the image data.

Koga discloses removing original background data (figure 2D of Koga) that is separate from and not part of the image data (figure 2C and column 10, lines 30-46 of Koga).

Tse and Koga are combinable because they are from the same field of endeavor, namely removing background data in scanned document image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to remove background data that is separate from and not part of the image data, as taught by Koga. The motivation for doing so would have been to improve the efficiency of image data transmission (column 10, lines 22-25 and lines 39-46 of Koga). Therefore, it would have been obvious to combine Koga with Tse to obtain the invention as specified in claims 1, 14 and 26.

Further regarding claim 14: The device of claim 1 performs the method of claim 14.

Further regarding claim 26: The various units of the device recited in claim 1 are the corresponding means of the device recited in claim 26.

Regarding claims 6 and 19: Tse discloses that said image processing unit applies said one or more types of image processing to the image data and the original detected background level value

through one operation (column 7, lines 46-50 of Tse). The dynamic range modification is performed to both the background level (column 7, lines 46-47 of Tse) and the image data (column 7, lines 47-50 of Tse) as a single combined operation (figures 11a-11d and column 7, line 66 to column 8, line 5 of Tse).

Regarding claims 7 and 20: Tse discloses a combining unit (figure 13(100(portion)) and column 9, lines 12-13 of Tse) which includes the detected original background level into the image data as part of the image data prior to the image processing by said image processing unit (column 7, lines 18-30 of Tse). The detected background level is included as a part of the image data since pixels which have a gray level value above the threshold level are saturated white (column 7, lines 18-30 of Tse). The combining unit corresponds to the portion of the controller, along with the associated embodied software, that performs the functions of the combining unit (column 9, lines 12-13 of Tse).

Regarding claims 8 and 21: Tse discloses that said combining unit generates a gate signal indicative of a position of the detected background level value data included in the image data (figure 15 and column 10, lines 13-22 of Tse).

Tse further discloses a background data extracting unit (figure 13(100(portion)) and column 9, lines 12-13 of Tse) which extracts the detected original background level value data (column 8, lines 48-54 and lines 63-65 of Tse) from the image data in response to the gate signal (column 9, line 65 to column 10, line 3 of Tse). The detected background level is calculated (column 8, lines 63-65 of Tse) based on the image data histogram (figure 4 and column 8, lines 48-54 of Tse), which is produced using a gate signal indicative of a position of an analyzed pixel within an analysis window (column 9, line 65 to column 10, line 3 of Tse), and thus the position of the detected background level.

Regarding claim 11: Tse discloses a printer unit (figure 13(400) of Tse) which prints an image on a paper sheet according to the image data from which the background noise is removed by said background removal unit (column 8, lines 44-47 of Tse).

Further regarding claims 31-33: Koga discloses appending, in a same file (file output at figure 7(711) of Koga) for subsequent processing of the image data (column 10, lines 1-11 of Koga), the original background level value data to the image data (figure 2D of Koga) in a part of the data file concatenated from the image data (column 9, line 61 to column 10, line 11 of Koga – *The resultant output image file that is displayed has the template image file, and thus the background level value data, as a separate but concatenated portion of the data file since the de-shaded image is separately processed, but both are output as a single image*). By combination with Tse, the appending taught by Koga would be performed by the background detecting unit/means.

5. Claims 2-3 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tse (US Patent 6,198,845 B1) in view of Koga (US Patent 5,388,167) and Shirasawa (US Patent 5,689,590).

Regarding claims 2-3 and 15-16: Tse in view of Koga does not disclose expressly that said one or more types of image processing includes γ conversion.

Shirasawa discloses γ conversion processing (figure 3(121-124) and column 5, lines 63-67 of Shirasawa) in a background image data removal system (column 6, lines 44-48 of Shirasawa), wherein said γ conversion processing is performed at an end of one or more types of image processing (figure 3 (110,111) and column 5, lines 43-45 and lines 63-66 of Shirasawa).

Tse in view of Koga is combinable with Shirasawa because they are from the same field of endeavor, namely removal of background noise in digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform γ conversion processing at an end of one or more types of image processing, as taught by Shirasawa, said one or more types of image processing being the one or more types of image processing taught by Tse. The motivation for doing so would have been to correct for inaccuracies in the sensors and color separated image data (column 5, lines 32-39 of Shirasawa). Therefore, it would have been obvious to combine Shirasawa with Tse in view of Koga to obtain the invention as specified in claims 2-3 and 15-16.

6. Claims 4-5, 9-10, 17-18, 22-23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tse (US Patent 6,198,845 B1) in view of Koga (US Patent 5,388,167) and Kamo (US Patent 5,465,160).

Regarding claims 4 and 17: Tse in view of Koga does not disclose expressly that said one or more types of image processing includes MTF correction.

Kamo discloses performing MTF correction on scanned image data (column 10, lines 29-32 of Kamo).

Tse in view of Koga is combinable with Kamo because they are from the same field of endeavor, namely processing and correction of scanned digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform MTF correction on the scanned in image, as taught by Kamo. The motivation for doing so would have been to provide the proper frequency response for the image data scanned in by the scanner, thus improving the image quality. Therefore, it would have been obvious to combine Kamo with Tse in view of Koga to obtain the invention as specified in claims 4 and 17.

Regarding claims 5 and 18: Tse in view of Koga does not disclose expressly that said one or more types of image processing includes a filtering process.

Kamo discloses performing a filtering process on the scanned digital image data (column 10, lines 29-32 of Kamo). Both shading correction and edge smoothing (column 10, lines 29-32 of Kamo) are types of filtering processes.

Tse in view of Koga is combinable with Kamo because they are from the same field of endeavor, namely processing and correction of scanned digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform a filtering process on the scanned image data, as taught by Kamo. The motivation for doing so would have been improve the overall image quality. Therefore, it would have been obvious to combine Kamo with Tse in view of Koga to obtain the invention as specified in claims 5 and 18.

Regarding claims 9 and 22: Tse discloses that said combining unit includes the detected original background level into the image data at a position of a blank period of the image data (figure 11a (white portions of images); column 7, lines 46-49; and column 10, lines 13–22 of Tse). Pixel positions within specific windowed portions of the scanned image data are analyzed (column 10, lines 13-22 of Tse). For certain positions (figures 11a(white portions of images) and column 7, line 67 to column 8, line 1 of Tse), specifically the portions that are originally white, the detected background level is included as the image data at said positions (column 7, lines 46-49 of Tse).

Tse in view of Koga does not disclose expressly that said one or more types of image processing includes a filtering process.

Kamo discloses performing a filtering process on the scanned digital image data (column 10, lines 29-32 of Kamo). Both shading correction and edge smoothing (column 10, lines 29-32 of Kamo) are types of filtering processes.

Tse in view of Koga is combinable with Kamo because they are from the same field of endeavor, namely processing and correction of scanned digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform a filtering process on the scanned image data, as taught by Kamo. The motivation for doing so would have been improve the overall image quality. Therefore, it would have been obvious to combine Kamo with Tse in view of Koga to obtain the invention as specified in claims 9 and 22.

Regarding claims 10 and 23: Tse discloses that said combining unit includes the detected original background level into the image data at a position of a valid period of the image data (figure 11d (white portions of images); column 7, lines 46-49; and column 10, lines 13–22 of Tse). Pixel positions

within specific windowed portions of the scanned image data are analyzed (column 10, lines 13-22 of Tse). For certain positions (figure 11d(white portions of images) and column 8, lines 4-5 of Tse), specifically the portions that are were not originally white but are modified to the background level, the detected background level is included as the image data at said positions (column 7, lines 46-49 of Tse).

Tse in view of Koga does not disclose expressly that said one or more types of image processing includes a filtering process.

Kamo discloses performing a filtering process on the scanned digital image data (column 10, lines 29-32 of Kamo). Both shading correction and edge smoothing (column 10, lines 29-32 of Kamo) are types of filtering processes.

Tse in view of Koga is combinable with Kamo because they are from the same field of endeavor, namely processing and correction of scanned digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform a filtering process on the scanned image data, as taught by Kamo. The motivation for doing so would have been improve the overall image quality. Therefore, it would have been obvious to combine Kamo with Tse in view of Koga to obtain the invention as specified in claims 10 and 23.

Regarding claim 29: Tse discloses that said combining unit includes the threshold into the clipped image data at a position of a valid period of the clipped image data (figures 11(white portions of images); column 7, lines 46-49; and column 10, lines 13–22 of Tse). Pixel positions within specific windowed portions of the scanned image data are analyzed (column 10, lines 13-22 of Tse). For certain positions (figure 11d(white portions of images) and column 8, lines 4-5 of Tse), specifically the portions that are were not originally white but are modified to the background level, the detected background level is included as the image data at said positions (column 7, lines 46-49 of Tse).

Tse in view of Koga does not disclose expressly that said one or more types of image processing includes a filtering process; and that the included threshold has a data size larger than a filter size of said filtering operation.

Kamo discloses performing a filtering process on the scanned digital image data (column 10, lines 29-32 of Kamo). Both shading correction and edge smoothing (column 10, lines 29-32 of Kamo) are types of filtering processes.

As is well-known in the art, edge smoothing is performed locally, such as at small segments of characters (figures 13a-13c and figure 14 of Kamo). The threshold data size is throughout the background area of the entire image (figure 11d(white portion) of Tse). Therefore, the included threshold taught by Tse has a data size larger than a filter size of said filtering operation taught by Kamo.

Tse in view of Koga is combinable with Kamo because they are from the same field of endeavor, namely processing and correction of scanned digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform a filtering process on the scanned image data, as taught by Kamo. The motivation for doing so would have been improve the overall image quality. Therefore, it would have been obvious to combine Kamo with Tse in view of Koga to obtain the invention as specified in claim 29.

7. Claims 12-13 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tse (US Patent 6,198,845 B1), Venable (US Patent 5,270,806), and Koga (US Patent 5,388,167).

Regarding claims 12 and 24: Tse discloses a memory unit (figure 13(220) of Tse) which stores therein scanned image data (column 8, line 51 and column 9, lines 5-11 of Tse) and original background level data (column 3, lines 32-35 and lines 53-56 of Tse); and a background removal unit (figure 13(100 (portion)) of Tse) which removes background noise from the scanned image data stored in said memory unit (column 7, lines 42-47 of Tse).

Tse does not disclose expressly that said original background level value data is separate from the scanned image data; an input unit which receives a user instruction making a choice between performing of said background noise removal on the scanned image data and non-performing of said background noise removal on the scanned images; and that said background removal unit removes background noise in response to the user instruction indicative of performing of said background noise removal, and refrains from removing background noise in response to the user instruction indicative of non-performing of said background noise removal, wherein in response to the user instruction indicative of performing of the background noise removal, said original background level value data is modified by image processing identical to that applied to the scanned image data to produce modified background level value data.

Venable discloses an input unit (figure 4(52) of Venable) which receives a user instruction (column 5, lines 31-41 of Venable) making a choice between performing of an image processing function on the scanned image data and non-performing of said image processing function of the scanned image data (column 7, lines 58-68 of Venable); and performing said image processing function in response to the user instruction indicative of performing said image processing function, and refraining from performing said image processing function in response to the user instruction indicative of non-performing of said image processing function (column 7, lines 58-68 of Venable). Image processing is performed with an interactive interface (column 7, lines 58-68 of Venable). If performance of a particular

image processing is desired, the user simply changes a setting from the present position. If non-performance is desired, the user simply leaves said setting at the present position.

Tse and Venable are combinable because they are from the same field of endeavor, namely the processing and editing of digital color image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a user interface so that a user can select whether or not to perform a particular image processing function, as taught by Venable, wherein said image processing function is the background noise removal taught by Tse. The motivation for doing so would have been that the interactive image processing taught by Venable allows a user to perform image processing for multiple variables, thus eliminating a lot of the tedious trial and error normally required for image processing based on multiple variables (column 7, lines 47-62 of Venable). Therefore, it would have been obvious to combine Venable with Tse.

The combination of Tse and Venable does not disclose expressly that said original background level value data is separate from the scanned image data; and that, in response to said user instruction indicative of performing of the background noise removal, said original background level value data is modified by image processing identical to that applied to the scanned image data to produce modified background level value data.

Koga discloses that the original background level value data (figure 2D of Koga) is separate from the scanned image data (figure 2C and column 10, lines 30-46 of Koga); and that said original background level value data is modified by image processing (column 10, lines 39-46 of Koga) identical to that applied to the scanned image data to produce modified background level value data (column 10, lines 30-46 of Koga). Both the original background level value data and the scanned image data are processed by the shading extraction (column 10, lines 30-46 of Koga), thus keeping the original background level value data (figure 2D of Koga) separate from the scanned image data (figure 2C of Koga).

The combination of Tse and Venable is combinable with Koga because they are from the same field of endeavor, namely removing background data in scanned document image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to remove background data that is separate from and not part of the image data, while applying identical image processing to the original background level value data and to the scanned image data, as taught by Koga. The motivation for doing so would have been to improve the efficiency of image data transmission (column 10, lines 22-25 and lines 39-46 of Koga). Therefore, it would have been obvious to combine Koga with Tse to obtain the invention as specified in claims 12 and 24.

Further regarding claim 24: The apparatus of claim 12 performs the method of claim 24.

Regarding claims 13 and 25: Tse does not disclose expressly a controller which connects the memory unit to an external network so as to allow access to be made from the external network to the scanned image data stored in said memory unit.

Venable discloses a controller which connects the memory unit to an external network so as to allow access to be made from the external network to the scanned image data stored in said memory unit (figure 3 and column 4, lines 56-65 of Venable).

Tse and Venable are combinable because they are from the same field of endeavor, namely the processing and editing of digital color image data. At the time of the invention, it would have been obvious to connect the memory unit to an external network, as taught by Venable. The motivation for doing so would have been to allow various external workstations, print servers, and other devices to access the processed image data, thus allowing external users access to more complex image processing services than may be available locally (column 4, lines 60-65 of Venable).

Allowable Subject Matter

8. Claims 27-30 and 34-35 are allowed.

Claims 27 and 30 recite *inter alia* that one or more types of image processing is performed both to clipped image data and to an original threshold level value, said original image threshold value determined based on a detected background level, so as to generate both clipped image processed data from the scanned image data and a modified threshold level value from the original threshold level value. A generated threshold derived from said modified threshold value is used to perform background removal. Examiner has not found this precise combination of limitations in the prior art such that claims 27 and 30 would be anticipated and/or rendered obvious by the prior art. The closest prior art found is the prior art relied upon in the prior art rejections set forth above. Thus, independent claims 27 and 30 are considered allowable. Claims 28-29 and 34-35 are considered allowable at least owing to their respective dependencies from either claim 27 or claim 30.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

   a. Yoshinobu Mita, US Patent 5,706,368, Patented 06 January 1998.

   b. Toru Kasamatsu, US Patent 5,761,338, Patented 02 June 1998.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James A. Thompson
Examiner
Technology Division 2625

JAT
16 April 2007

DOUGLAS Q. TRAN
PRIMARY EXAMINER